

# PT430/PT430F

Narrow Acceptance *T-41-61*  
Phototransistor

### ■ Features

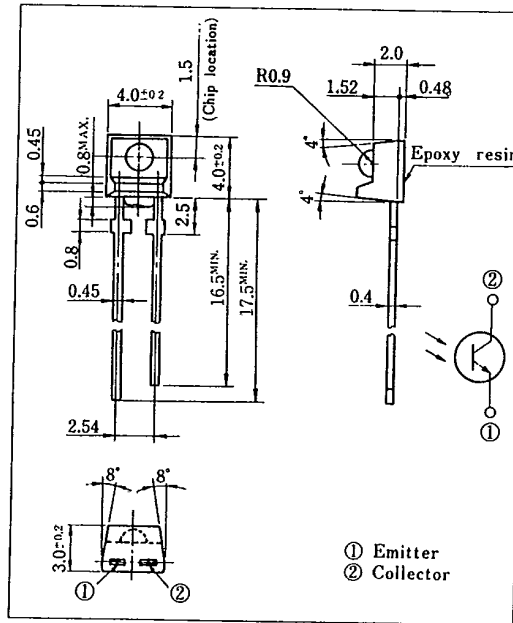
1. Narrow acceptance epoxy resin package ( $\Delta\theta$  : TYP.  $\pm 13^\circ$ )
2. Visible light cut-off type : PT430F

### ■ Applications

1. VCRs, cassette tape recorders
2. Optoelectronic switches, optoelectronic counters
3. Automatic stroboscopes

### ■ Outline Dimensions

(Unit : mm)



### ■ Absolute Maximum Ratings

( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Rating	Unit
Collector-emitter voltage	$V_{CE0}$	35	V
Emitter-collector voltage	$V_{ECO}$	6	V
Collector current	$I_C$	20	mA
Collector power dissipation	$P_C$	75	mW
Operating temperature	$T_{opr}$	$-25 \sim +85$	$^\circ\text{C}$
Storage temperature	$T_{stg}$	$-40 \sim +85$	$^\circ\text{C}$
*1 Soldering temperature	$T_{sol}$	260	$^\circ\text{C}$

\*1 For 3 seconds at the position of 2.5mm from the bottom face of resin package

### ■ Electro-optical Characteristics

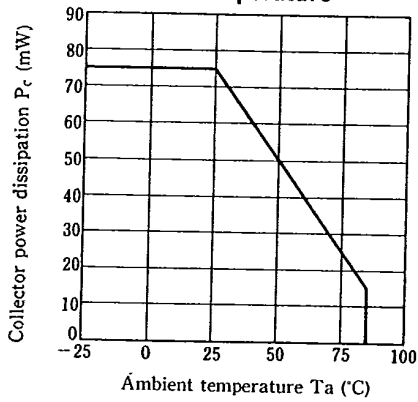
( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*2 Collector current	$I_C$	$V_{CE} = 5\text{V}$ $E_e = 1\text{mW}/\text{cm}^2$	0.4	1.7	6.0	mA
			0.25	0.8	3.0	mA
Collector dark current	$I_{CE0}$	$V_{CE} = 20\text{V}$ , $E_e = 0$	—	$10^{-9}$	$10^{-7}$	A
*2 Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 0.5\text{mA}$ , $E_e = 10\text{mW}/\text{cm}^2$	—	0.1	0.4	V
Peak sensitivity wavelength	$\lambda_P$		—	800	—	nm
			—	860	—	nm
Response time (Rise)	$t_r$	$V_{CE} = 2\text{V}$ , $I_C = 2\text{mA}$ , $R_L = 100\Omega$	—	3	—	$\mu\text{s}$
Response time (Fall)	$t_f$		—	3.5	—	$\mu\text{s}$

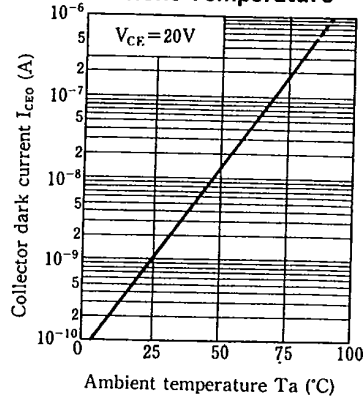
\*2  $E_e$  : Irradiance by CIE standard light source A (tungsten lamp)

T-41-61

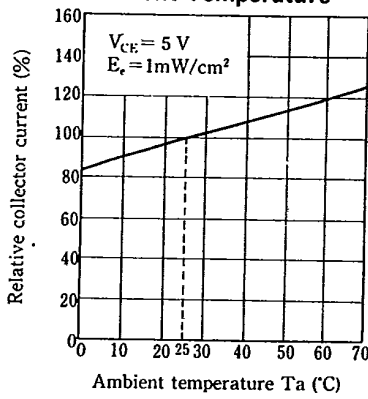
**Fig. 1 Collector Power Dissipation vs. Ambient Temperature**



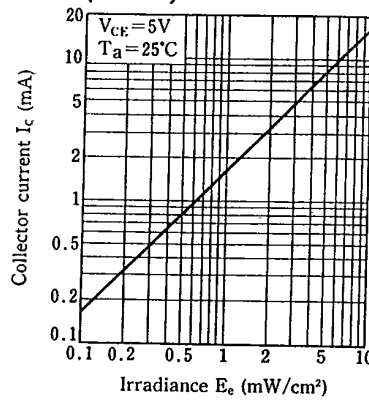
**Fig. 2 Collector Dark Current vs. Ambient Temperature**



**Fig. 3 Relative Collector Current vs. Ambient Temperature**

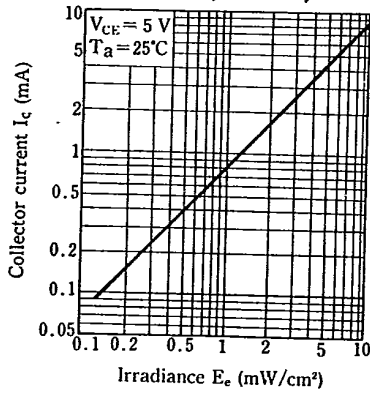


**Fig. 4 Collector Current vs. Irradiance (PT430)**

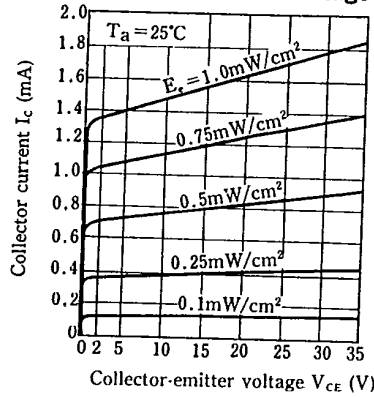


5

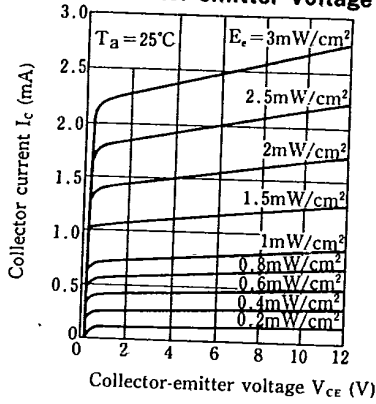
**Fig. 5 Collector Current vs. Irradiance (PT430F)**



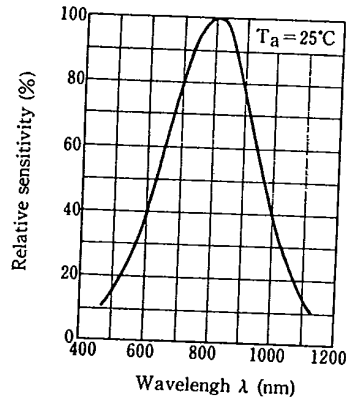
**Fig. 6 Collector Current vs. Collector-emitter Voltage (PT430)**



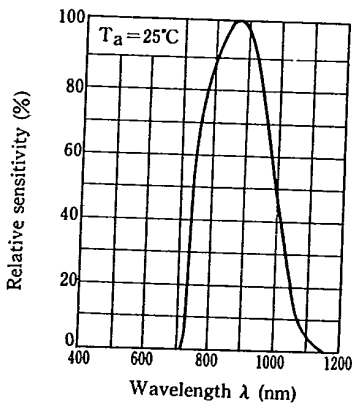
**Fig. 7 Collector Current vs. Collector-emitter Voltage (PT430F)**



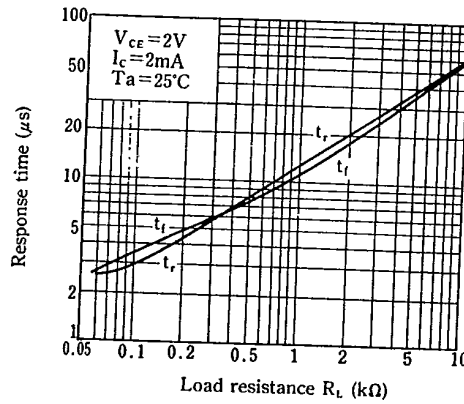
**Fig. 8 Spectral Sensitivity (PT430)**



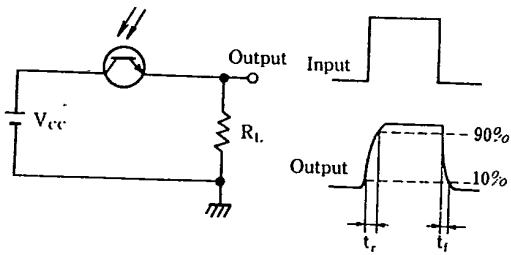
**Fig. 9 Spectral Sensitivity (PT430F)**



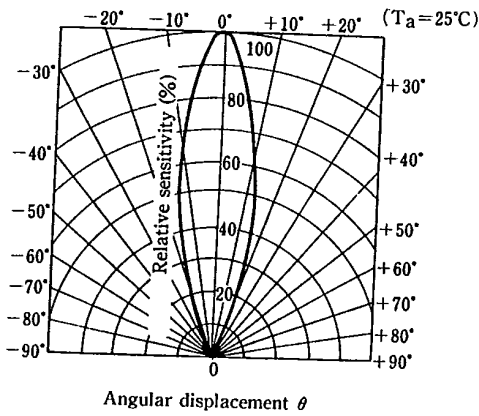
**Fig. 10 Response Time vs. Load Resistance**



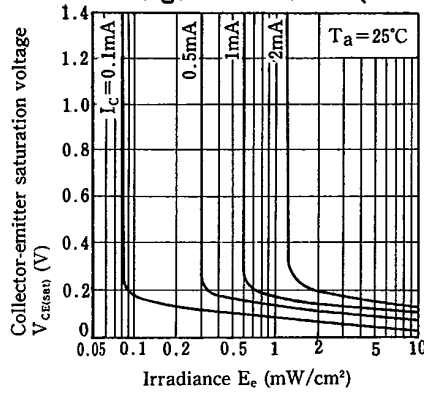
**Test Circuit for Response Time**



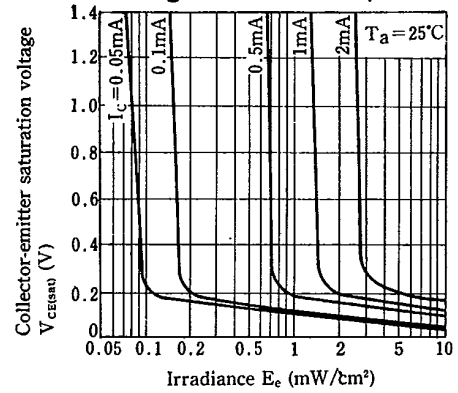
**Fig. 11 Sensitivity Diagram**



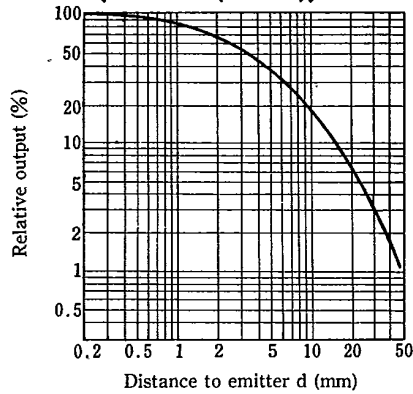
**Fig. 12 Collector-emitter Saturation Voltage vs. Irradiance (PT430)**



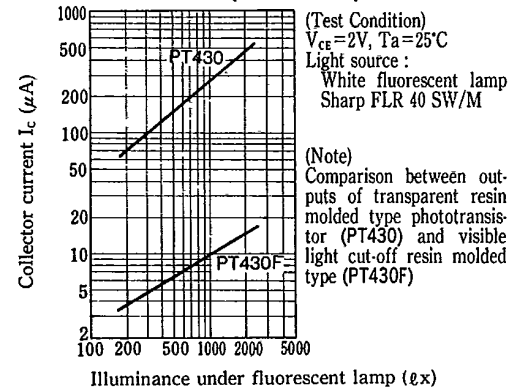
**Fig. 13 Collector-emitter Saturation Voltage vs. Irradiance (PT430F)**



**Fig. 14 Relative Output vs. Distance (Emitter : (GL430))**



**Fig. 15 Collector Current vs. Illuminance (Reference)**



5